

Total Maximum Daily Load Implementation Plan
Whitewater Creek – Taylor County
(HUC 031300051503)
Flint River Basin

Prepared by
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228 West Lamar Street, Americus, Georgia
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Whitewater Creek TMDL Implementation Plan
Taylor County Georgia - Flint River Basin
HUC # 031300051503

Background

The State of Georgia assesses its water bodies for compliance with water quality standards criteria as required by the Federal Clean Water Act (CWA). Assessed water bodies are placed into one of three categories; supporting, partially supporting or not supporting their designated uses depending on water quality assessment results. These water bodies are placed on Georgia's 305(b) list as required by that section of the CWA that addresses the assessment process, and are published every two years in *Water Quality in Georgia*.

Some of the 305(b) partially supporting and not supporting water bodies are also assigned to Georgia's 303(d) list, also named after the corresponding section of the CWA. Water bodies on the 303(d) list are required to have a Total Maximum Daily Load (TMDL) evaluation if water samples are found to exceed water quality standards for any of numerous contaminants. Whitewater Creek in Taylor and Macon Counties was one of many in the Flint River basin found to be in violation of water quality standards for fecal coliform bacteria. Based on analysis of water quality samples collected, the TMDL calls for a 44% reduction in the fecal coliform bacteria count, from 2.5E+13 to 1.39E+ 13.

The TMDL process establishes the allowable loading of pollutants or other quantifiable parameters for a water body based on the relationship between pollution sources and in-stream water quality conditions. This allows water quality-based controls to be developed to reduce pollution and restore and maintain water quality.

Water samples were collected by the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources between February and December, inclusive, 2000, at trend monitoring station #11058401 located at State Road 3 (US 19) south of Butler, Georgia.

The 303(d) listing includes two segments of Whitewater Creek; the 17 mile segment from Big Whitewater Creek in Taylor County to Cedar Creek in Macon County, and the 13 mile segment from Cedar Creek to the Flint River, all in Macon County. This TMDL Implementation Plan addresses the former of the two segments.

Environmental Parameter

Fecal coliform bacteria are indicators of a potential public health risk, and not an actual cause of disease. They have been traditionally used by public health authorities to indicate health risk from a wide range of living organisms too small to see with the naked eye (microbes), and to set water quality standards for drinking water, shellfish consumption and water contact recreation.

Fecal coliform bacteria suggest the co-presence of bacterial pathogens (disease-causing microbes) which can cause dysentery, gastrointestinal illness, cholera, typhoid fever and Astaph@ infections. The actual risk of contracting a disease from a pathogen depends on a host of factors, such as the method of exposure or transmission, pathogen concentration, incubation period and the age and health status of the infected party.

Fecal coliform are an imperfect indicator of water safety, and regulators continually debate whether other bacterial species are better indicators of potential health problems. The debate remains largely academic; however, as over 90% of states still rely on fecal coliform, in whole or in part, as their recreational water quality standard.¹

The water safety standard used by the State of Georgia for fecal coliform bacteria is based on a 30-day geometric mean (at least four samples collected during a thirty day period at intervals of not less than twenty-four hours) of 200 cfu/100 ml² for water samples collected during the six month period May through October, inclusive, and a 30-day geometric mean of 1,000 cfu/100 ml (with a maximum of 4,000 cfu/100 ml) for water samples collected during the months of November through April, inclusive. The geometric mean is a statistical method used to adjust for great variability in sample values; quite characteristic of fecal coliform bacteria.

As data in the following table indicates one of the four geometric means (359 cfu) exceeds applicable standards. Consequently, Whitewater was classified as not supporting the creek's designated use of fishing.

Whitewater Creek Water Quality Sampling Data
HUC 031300051503

Sample Date 2000	Observed Fecal Coliform (counts/100 ml)	Geometric Mean (counts/100 ml)
February 23	80	
March 1	80	
March 7	50	
March 14	170	86
May 16	50	
May 24	140	
May 31	70	
June 13	330	113
July 26	490	
August 2	130	
August 9	330	
August 16	790	359
November 14	330	
November 16	110	
November 28	80	
December 6	80	123

Source: Total Daily Maximum Daily Load Evaluation for Twenty-Eight Stream Segments in the Flint River Basin for Fecal Coliform, GA. DNR-EPD, January 2002

¹ Watershed Protection Techniques, vol..3, no.1, April, 1999

² coliform units/100 milliliters

It is well documented that fecal coliform bacteria counts typically increase immediately after rain events, in part because the fecal coliform bacteria present across the landscape are washed into surface waters. Static-state conditions (conditions not influenced by rainfall) are preferred for collecting water samples used in water quality analysis. Rainfall apparently did not influence the highest sample count recorded (790 on August 16). According to the Record of River and Climatological Observations made at the three nearest recording stations,³ no rainfall was recorded from August 11-16, inclusive, the period immediately preceding the August 16 collection date.

Watershed Description

The single collection point for this impaired segment is located in the primary hydrologic unit (Hydrologic Unit Code) 031300051503, a watershed of approximately 17,000 acres. There are two main creeks in this watershed, Whitewater and Rambulette.⁴ Rambulette flows from the west to the cited collection point and, although it has numerous small tributaries, is not itself charged with waters from an upstream watershed. The primary watershed is charged with waters from two upstream drainage basins: Big Whitewater Creek (HUC 031000051501), a 29,000 acre watershed, and Little Whitewater Creek (HUC 031300051502), a 13,000 acre watershed, neither of which is charged by upstream watersheds.⁵

Big Whitewater has a main channel flow of approximately twelve linear miles (exclusive of one main tributary), and Little Whitewater Creek has a main channel flow of approximately nine linear miles. The impaired segment begins at the confluence of these creeks, flows into Macon County and terminates at the City of Ideal, at Marvis Chapman Road, formerly State Route 195. This point served as the collection site for the impaired segment immediately downstream.

Land Use

Taylor County is heavily forested. Statewide 66% of the land area is in forest; in Taylor the percentage is 79.⁶ The affected watersheds are approximately 70% forested. By far the lowest percentage is found in Macon County where approximately half of the affected watershed is in forest. Other land uses, in descending order, include conventional row-crop agriculture, hay production, sand mining at the headwaters of Big Whitewater Creek, and horticulture.

None of the referenced sub-basins have experienced development in the past decade. Total estimated population is 1,700: 700 in HUC -01; 300 in HUC -02; 400 in HUC -03; and 300 in that portion of HUC -07 (Taylor and Macon Counties) which drains into this

³ Southwest Georgia Agricultural Experiment Station near Plains, Fort Valley State University in Fort Valley, and Callaway Gardens at Pine Mountain

⁴ Rambulette has previously been included on the 303(d) list, and it is assumed here that water flow from the Rambulette was not included in the sampling of Whitewater Creek.

⁵ There are conflicts between the creek names as they appear on the 7.5 minute topographic quadrangle map (Butler West) and local references. In this text creeks are identified by local name and HUC identification number on the accompanying map.

⁶ Forestry Statistics for Georgia, 1977. U.S.D.A. Forest Service, Resource Bulletin SRS-36

impaired segment. Housing units (single-family with septic systems) throughout these sub-basins total approximately 750 (an area-wide average of ninety acres per residence) with no concentrations and no residential development along the water's edge.

Source Assessment

Pollution originates from two broad sources; point sources and nonpoint sources. A point source is defined as a discernable, confined, and discrete point or site from which pollutants are discharged into surface waters. Examples of point sources are municipal and industrial wastewater treatment plants. These sources have been addressed through the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) permit program and are not the subject of this implementation plan. Furthermore, there are not any NPDES regulated facilities discharging fecal coliform into the Whitewater Creek watershed.

The second broad category of pollution is nonpoint sources. These are diffuse and generally involve accumulation of fecal coliform bacteria on land surfaces that wash off as a result of rain events. In general, nonpoint sources cannot be identified as discharging wastewater into a water body at a single location. Typical nonpoint sources of fecal coliform bacteria include:

Wildlife

Agricultural Livestock

Animal grazing/confinement
Animal access to streams
Use of manure on crop/pasture

Urban Development

Leaking septic systems
Land application systems
Landfills
Storm sewers

Wildlife

The importance of wildlife as a source of fecal coliform bacteria in streams varies considerably, depending on the animal species present in the watershed. Animals that spend a large portion of their time in or around aquatic habitats are considered to be the most significant wildlife contributors of fecal coliform bacteria.

A feral hog population of unknown size has been reported in the watershed, but below the previously cited collection point. It is assumed, in large part because of the remoteness of the area, they are also present upstream of the previous collection site. Feral hogs are adaptable to almost any habitat, but prefer wooded areas close to water. Lacking sweat glands they regulate body temperature by lying in water or mud and cannot survive in hot climates without a plentiful supply of water. Areas elsewhere with significant feral hog populations have recorded high concentrations of fecal coliform bacteria. Their ability to thrive on a very diverse diet gives them a distinct survival advantage over other species. Because they are so prolific, adaptable, tenacious, and have no natural predators, it is difficult to control their population.

The consensus among Taylor County residents who attended the April 28, 2003, public meeting held to develop this implementation plan was there is not a significant deer population in the watershed, but that their numbers are increasing. Residents of both counties commented about having seen deer carcass in local creeks.

According to 2000 deer census data of the Wildlife Resources Division of the Georgia Department of Natural Resources, this is a transition area where the deer census increases from approximately 35 to approximately 50 deer per square mile. On the basis of this information it is assumed there are approximately 2,800 deer in the combined Big and Little Whitewater Creek watersheds (1/15 acres), and 1,500 deer in the combined primary and affected portion of the secondary watershed (1/18 acres).

Although deer are generally considered to be one of the less significant contributors of fecal coliform bacteria, the feces they deposit on the land surface can result in the introduction of fecal coliform to streams during runoff (rain) events. It should be noted that between rain events considerable decomposition of the fecal matter should occur, resulting in a decrease in the associated fecal coliform numbers. This also holds true for other terrestrial mammals such as squirrel, rabbit and terrestrial birds.

There was a report of uncovered stock piles of poultry litter in “large volumes” used for cultivation of deer plots proximate to Little Whitewater Creek near the confluence with Big Whitewater. It was estimated these activities began the same year the water quality samples were collected.

There are not believed to be sufficient numbers of other wildlife species present in the area to constitute a significant contribution to elevated counts of fecal coliform bacteria.

Agricultural Livestock

Agricultural livestock are potential sources of fecal coliform bacteria whether on open pasture or in confinement. Cattle, sheep, horses, and goats grazing on pasture deposit feces onto land surfaces from where it can be transported to nearby streams during rain events. Livestock on open grazing also often have direct access to streams that pass through pastures, and as such can impact water quality in a more direct manner. Confined animal feeding operations (CAFO), such as beef cattle in feedlots, poultry houses and confined dairy cattle and swine, generate large quantities of fecal material within a limited area with potential for significant bacterial runoff.

According to 2000 agricultural statistics there were 3,500 beef cattle in Taylor County and 3,000 beef cattle in Macon County. Insignificant numbers were located in the affected watersheds. A small herd (± 100 head) is believed to have had direct access to Big Whitewater near its confluence with Little Whitewater. A smaller herd is believed to be present in the lower reach of the primary watershed; without access to the creek. Any beef cattle which were in the Macon County portion of the watershed were in small, sparse herds of the size which supplement income rather than serve as a source of livelihood.

Agricultural statistics do not reflect any hog or pig production in Taylor County, and only 25 head are recorded for Macon County. These are not believed to be present in the Whitewater watershed.

Taylor County does not report any dairy cows, while Macon County, with 9,600 head, reportedly has the state's largest dairy cattle herd. This activity is concentrated in the east half of the county, and no dairy cows are believed to be present in the Macon County portion of the watershed.

In 2000 over five million chickens were raised in 55 poultry houses distributed across the county.⁷ Although none of these houses were located in the primary watershed, one half dozen units were located in the Little Whitewater Creek watershed, approximately eleven linear miles above the water quality collection site. Another dozen were located below the U.S. 19 collection site in the upper portion of the secondary watershed.

It is assumed that litter from some of these and possibly other poultry houses was applied to land within the watershed. Unless the farmer applying litter to his land also raises poultry, the litter must be purchased just as any other soil enhancer. And like any other fertilizer it must be incorporated soon after application to achieve maximum benefit.

In recent years the poultry industry has been promoting the use of nutrient management planning; matching nutritional value of poultry litter with the nutritional needs of any given application site. This refinement to an existing best management practice further reduces the potential for bacterial runoff. There were questions raised at the meeting as to whether these practices are being followed in the watershed.

Urban Development

For TMDL purposes, septic tanks are considered an "urban" development. After solids are trapped in a septic tank, wastewater is distributed through a subsurface drain field and allowed to percolate through the soil. If the septic system is properly located, installed and maintained, bacteria are effectively removed by filtering and straining water through the soil profile. A large number of septic systems fail, however, when wastewater breaks out or passes through the soil profile without adequate treatment.

The causes of septic system failure are numerous; inadequate soils, poor design, siting, testing or inspection, hydraulic overloading, tree growth in the drain field, old age, and owner failure to clean out the system. Among the factors officials should consider when investigating whether septic systems are likely to be a major bacteria source are age (systems older than twenty years) and small lots. The design life of most septic systems is 15-30 years, at which point major rehabilitation or replacement is often needed.

Only four public roads cross the seventeen mile impaired segment, one of them is at the southern extremity. This serves to limit public access to the waterway. There are approximately 750 single-family housing units (with septic systems) in the study area with no significant concentrations and essentially no units proximate to the creek. No

⁷ Georgia County Guide 2001

problems with malfunctioning septic systems have been reported in Taylor or Macon Counties.

Land Application Systems

Many smaller communities use a land application system (LAS) for treatment of sanitary wastewater. These facilities are required through state-issued LAS permits to treat wastewater by land application and to have zero discharge. However, runoff during rain events may carry surface residual containing fecal coliform bacteria to nearby streams. The City of Butler maintains a land application system for wastewater treatment in compliance with the state-issued permit. The application site is within the Big Whitewater Creek watershed. Runoff from this site would travel approximately four linear miles before entering Big Whitewater Creek.

Landfills

Leachate from landfills may contain fecal coliform bacteria and may at some point discharge into surface waters. Sanitary (municipal) landfills are the most likely type of landfills to serve as a source of fecal coliform bacteria. These receive household wastes, animal manure, offal, hatchery and poultry processing plant wastes, dead animals, and other types of wastes. Older sanitary landfills were not lined and those that remain active operate as construction/demolition landfills. Newer sanitary landfills are lined and have leachate collection systems. All landfills, except inert landfills, are now required to install environmental monitoring systems for groundwater sampling.

A large commercial municipal landfill is operating in Taylor County, but outside any of the cited watersheds. Groundwater hydrology is not believed to be such that leachate from this landfill could be contributing to the fecal count in Whitewater. No other such facilities are believed to have operated within the watershed.

Storm Sewers

Municipalities typically collect storm water flow (runoff) via a storm sewer system, and discharge it through distinct outlet structures into creeks and streams. Documented sources of nonhuman fecal coliform in urban watersheds include dogs, cats, raccoons, rats, beaver, gulls, geese, pigeons. Dogs in particular appear to be a major source of coliform bacteria and other microbes, because of their population density, daily defecation rate, and pathogen infection rates.

There are not any municipalities located in the affected watersheds, and there is not any storm water discharge from any municipality which would directly or indirectly affect Whitewater Creek watershed.

Stakeholder Involvement

Owners of land contiguous to the impaired segment of Whitewater Creek were identified from courthouse tax records. Local government officials, Farm Bureau officers, health department and forestry officials, and agricultural experts from the County Extension Office and National Resources and Conservation Service were also identified. Thirty-seven invitations were mailed to property owners and other stakeholders, and block ads were published in local newspapers inviting public participation in development of this document. Fifteen attended the Taylor County meeting; eighteen attended the Macon County meeting.

Potential Funding Sources

Georgia EPD

Watershed Assistance Grants

Volunteer Activities (Adopt-A-Stream)

Water Quality Cooperative Agreements

Nonpoint Source Implementation Grants (319)

Whitewater Creek Water Quality Sampling/Monitoring Plan
HUC 031300051503
(refer to map in rear of document)

Additional water sampling and analysis is proposed to help identify areas where efforts to locate possible contributors of fecal coliform loading are likely to be most beneficial. Additional sample collections are proposed for the following sites:

- | | |
|-------------------|---|
| Collection site 1 | Rustin Lake Road – This site is easily accessible, but downstream of the confluence of Big Whitewater and Little Whitewater Creeks. More useful data could be obtained perhaps by collecting samples from sites immediately above the confluence several hundred feet west of the roadway. These alternative locations will be accessible only by foot. Alternative sites <u>1-A</u> for Big Whitewater and <u>1-B</u> for Little Whitewater are identified for this purpose. |
| Collection site 2 | GA 3 (U.S. 19) – This is the site where the original sampling took place February-December, 2000, approximately three linear miles downstream from site 1. Samples collected here will be immediately upstream of the confluence with Rambulette Creek. |
| Collection site 3 | GA Hwy 127 – approximately three linear miles downstream from site 2. This is the last accessible site a short distance upstream of a twelve-house poultry farm located beside the creek. |
| Collection site 4 | This proposed collection site is approximately 2.75 linear miles downstream from site 3, and will require permission to cross private property. This site is believed to be the most accessible point (albeit across private property) downstream (± 1 linear mile) of a twelve-house poultry farm and known feral hog population. |
| Collection site 5 | This site is approximately four linear miles downstream of site 4, and immediately upstream of its confluence with Cedar Creek. This site is also immediately upstream of the impaired segment's termination point. |

STATE OF GEORGIA

TMDL IMPLEMENTATION PLAN FOR: Whitewater Creek
(STREAM)Fecal Coliform
(PARAMETER)RIVER BASIN: Flint (Middle Flint)
PLAN DATE: June 30, 2003

Prepared by: <u>Gerald Mixon</u> <u>Middle Flint Regional Development Center</u>		Or Prepared By: _____					
Address: <u>228 West Lamar Street</u>		Address: _____					
City: <u>Americus</u> State: <u>GA</u>		City: _____ State: _____					
Zip: <u>31709</u> e-mail: <u>gmixon@middleflintrdc.org</u>		Zip: _____ e-mail: _____					
Date Submitted to EPD: <u>June 30, 2003</u>		Date Submitted to EPD: _____					
General Information Obtain this information from the TMDL document or other information. When completed, this document will be a self-contained report independent of the TMDL document.		Significant Stakeholders Identify local governments, agricultural organizations or significant land holders, commercial forestry organizations, businesses and industries, and local organizations including environmental groups with a major interest in this water body.					
		Additional stakeholders identified on page 15.					
TMDL ID (to be entered by EPD)		Name/Organization	Taylor County Board of Commissioners				
Water body name	Whitewater Creek	Address	P. O. Box 278				
HUC basin name	Flint (Middle Flint)	City	Butler	State	GA	Zip	31006
HUC number	031300051503 and (-07)	Phone	478-862-3336			e-mail	
Primary county	Taylor	Name/Organization	Taylor County Extension Office				
Secondary county	Macon	Address	P.O. Box 397				
Primary RDC	Middle Flint	City	Butler	State	GA	Zip	31006
Secondary RDC		Phone	478-472-7588			e-mail	
Water body location	South-central Taylor Co.	Name/Organization	Taylor County Health Department				
	Big Whitewater to Cedar Cr	Address	P. O. Box 459				
Miles or area impacted	17 mile impaired segment	City	Butler	State	GA	Zip	31006
Parameter addressed in plan	Fecal coliform	Phone	478-472-8121			e-mail	
Water use classification	Fishing	Name/Organization	Taylor County Farm Bureau				
Degree of impairment	Partially supporting use	Address	512 West Talbot				
	Not supporting use X	City	Reynolds	State	GA	Zip	31076
Date TMDL approved by EPA	April 30, 2002	Phone	478-847-4180			e-mail	
Impairment due to	Point sources	Name/Organization	Taylor County Forestry Unit				
	Nonpoint sources X	Address	Route 2, Box 324				
	Both	City	Butler	State	GA	Zip	31006
Point source-Form A; Nonpoint source-Form B; Both-Form A+B+C		Phone	478-472-6129			e-mail	

FORM B

SUMMARY OF ALLOCATION MODEL RESULTS FROM TMDL DOCUMENT (existing load, target TMDL, and needed reduction)

EXISTING LOAD	TARGET TMDL	NEEDED REDUCTION
2.5E+13	1.39E+13	44%

I. IDENTIFY NONPOINT SOURCE CATEGORIES AND SUBCATEGORIES OR INDIVIDUAL SOURCES WHICH MUST BE CONTROLLED TO IMPLEMENT LOAD ALLOCATIONS:

List major nonpoint sources contributing to impairment including those identified in TMDL document.

SOURCE	DESCRIPTION OF CONTRIBUTION TO IMPAIRMENT	RECOMMENDED LOAD REDUCTION (FROM TMDL)
Nonpoint	None identified	44%* (required)

* Total Maximum Daily Load Evaluation for Twenty-Eight Stream Segments in the Flint River Basin For Fecal Coliform; Fecal Loads and Required Fecal Load Reductions (p. v), Ga. DNR, January 2003.

II. DESCRIBE ANY REGULATORY OR VOLUNTARY ACTIONS INCLUDING MANAGEMENT MEASURES OR OTHER CONTROLS BY GOVERNMENTS OR INDIVIDUALS THAT WILL HELP ACHIEVE THE LOAD ALLOCATIONS IN THE TMDL:

Existing required regulatory actions

RESPONSIBLE GOVERNMENT, ORGANIZATION OR ENTITY	NAME OF REGULATION/ORDINANCE	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Taylor County Board of Comm.	Zoning Ordinance	Regulates location of development in county	1998	active
Taylor County Health Dept.	State rules and regs. for on-site sewage mgt. systems	Regulates installation of septic tanks	<01/98	active
GA. EPD	Concentrated Animal Feeding Operations	Enforcement of wastewater treatment regulations applicable to feedlot operations	09/74	enforced as needed
Agriculture producers	Best Management Practices (BMP)	Maximizing production without causing deleterious effects on other resources	1990s	active

Existing voluntary actions

RESPONSIBLE ORGANIZATION OR ENTITY	NAME OF ACTION	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Landowners	Wild game hunting	Hunting feral hogs, deer, for recreational purposes	N/A	active
Agriculture producers	Nutrient Management Plans	Purchasers of poultry litter match nutrient needs of land to nutrient value of litter	2000	active
Cooperative Extension Service	Disseminate information	Consulting assistance, information on nonpoint-related impacts on water quality, water quality monitoring, analysis of nutrients and other constituents in animal waste, nutrient management plans	1914	active
Soil and Water Conservation District	Promote voluntary adoption of agricultural BMPs	Provide leadership in the protection, conservation, and improvement of soil, water and related resources	1937	active
USDA Natural Resources Conservation Service (NRCS)	Environmental Quality Incentives Program and other T/A	Develop standards and specifications regarding conservation practices, animal waste management systems, grazing activities, et. al. – implements state priorities	1997	active; needs additional funding
Farm Services Agency (FSA)	Water quality improvement practices (Conservation Reserve Program)	Administration of cost-sharing and incentive programs to improve environmental quality of farms. Funds targeted for high-priority watersheds with water quality problems.	1985	active
Resource Conservation and Development Council	Volunteer activism	Citizen activism in conservation of natural resources	1962	as needed

Additional recommended regulatory or other measures which should be implemented to reduce the loads of the TMDL parameter

ENTITY/ORGANIZATION RESPONSIBLE	NAME OF PROPOSED REGULATION/ORDINANCE/ OTHER	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Concerned Citizens	Adopt-A-Stream	Stream monitoring and sampling	Year 1-2	registration
GA. DNR	Hunter education	Educate hunters of the environmental harm of disposing wild game carcass in waterways	Years 1-5	pending plan approval and funding

Additional recommended regulatory or other measures (continued)

GA DNR	Wildlife survey	Survey impaired creek segment to determine whether wildlife are present in numbers sufficient to be major contributors to any unsafe fecal coliform levels, and develop necessary plan to address any problems identified	Year 2	pending plan approval and funding
Cooperative Extension Service, et. al.	Spot-check BMP applications	Staff visits to selected sites to assess proper implementation of applicable BMPs	Year 1-2	pending plan approval and funding

III. SCHEDULE FOR IMPLEMENTING MANAGEMENT MEASURES OR OTHER CONTROL ACTIONS:

These must be implemented within five years of when the implementation plan is accepted by EPD.

IMPLEMENTATION ACTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Form stakeholders group	X	X			
Organize implementation work with stakeholders and local officials to identify remedial measures and potential funding sources	X	X	X		
Identify sources of TMDL parameter		X	X		
Develop management programs to control runoff including identification and implementation of BMPs					
(Phase I): review effectiveness of BMP applications Agriculture		X	X		
Forestry	N/A				
Urban	N/A				
Mining	N/A				
Organize and implement education and outreach programs		X	X		
Detect and eliminate illicit discharges		X	X		
Evaluate additional management controls needed			X	X	
Monitor and evaluate results			X	X	
Reassess TMDL allocations				X	X
Provide periodic status reports on implementation of remedial activities			X	X	X
If needed, begin process for Phase II (next 5 years) and subsequent phases					X

IV. PROJECTED ATTAINMENT DATE AND BASIS FOR THAT PROJECTION:

The projected attainment date is 10 years from acceptance of the implementation plan by EPD.

V. MEASURABLE MILESTONES:

- Number of management controls and activities already implemented 11
- Number of management controls and activities proposed in five-year work program 4
- Number of management controls and activities actually implemented in five-year work period
- Stream sampled to identify areas of concern refer to accompanying map

VI. MONITORING PLAN:

Describe previous or current sampling activities or other surveys to detect sources or to measure effectiveness of management measures or other controls.

ORGANIZATION	TIME FRAME	PARAMETERS	PURPOSE	STATUS
DNR-EPD Watershed Plng & Mon Prog.	Feb-Dec, 2000	Fecal Coliform	Quality Assessment (TMDL Development)	completed

Describe any planned or proposed sampling activities or other surveys.

ORGANIZATION	TIME FRAME	PARAMETERS	PURPOSE	STATUS
"Friends of Whitewater"	2004-2006	Fecal Coliform	Water quality monitoring	registration
Georgia Southwestern State University	2004 2005	Fecal Coliform	Strategic sampling of impaired segment to help identify contributors	pending funding
EPD	2005	Fecal Coliform	Basin Planning	scheduled

VII. CRITERIA TO DETERMINE WHETHER SUBSTANTIAL PROGRESS IS BEING MADE:

- % concentration or load change (monitoring program)
44% reduction
- Categorical change in classification of the stream
Delisting of the creek is the goal
- Regulatory controls or activities installed
Four additional actions are proposed
- Best management practices installed
Inventory of current BMP compliance is proposed, pending results of additional testing

Additional stakeholders continued from page 10:

Lyn Owens Frank Hobbs James W Hankins & J Craig Hankins Rattler Land Management Group Daniel & Joyce Schooler Barringer LLC Jerry Albritton C T Bone Bussey Hammack E J & Mary Bodiford Carolyn Holder Margaret Harmon	Reed Brand Chloe Green Andy M & Mike Barrow David Harris Stacey Muller Joe H & Joey A Prince M G Allmon James Barfield Denard Day MB & B Partnership Thomas Neal Shehee Et al Edgar Layfield	Timothy & Paige Nicks C W Burgess Otis Mathis, Jr., Chairman Board of Comm. Lenda Taunton Richard P. Turk, Mayor of Butler Mary Ayers, Mayor of Reynolds Ray Jones, USDA District Conservationist Phil Porter, Georgia Forestry Drew Marczak-The Timber Co.
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**WHITEWATER CREEK (TAYLOR COUNTY)
TMDL IMPLEMENTATION PLAN
PROPOSED WATER QUALITY COLLECTION SITES**

